ISSUE 1; April 2016

Description

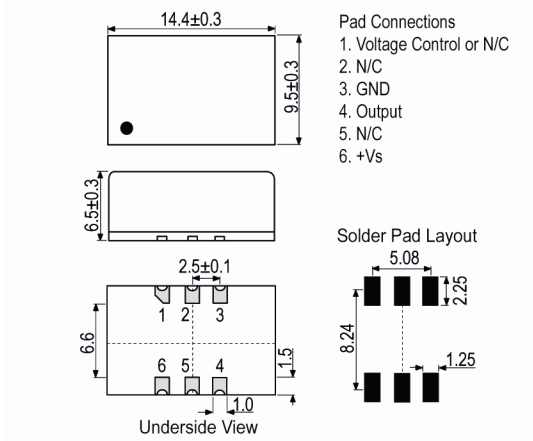
- Oven controlled crystal oscillator on a FR4 base with a metal lid, available with or without voltage control.
  Please note: This document is intended to illustrate the general capability and versatility of IQD's design. For specific enquiries please contact one of IQD's Sales Offices where we can tailor a unique specification to meet your needs.

  Model Options:
  IQOV-162-1 HCMOS output, no pulling
  IQOV-162-2 Sinewave output, no pulling
  IQOV-162-3 HCMOS output, ±3ppm to ±8ppm pulling
  IQOV-162-4 Sinewave output, ±3ppm to ±8ppm pulling

Frequency Parameters

- Frequency 10.0MHz to 100.0MHz
- Frequency Tolerance ±500.00ppb
- Tolerance Condition @ 25°C, 3.3V, VC=1.65V after 15mins warm-up
- Frequency Stability ±10.00ppb to ±100.00ppb
- Ageing ±5ppb max per day, ±500ppb max per year
- Frequency Tolerance (measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC=1.65V/NC and after 15 minutes of operation, within 30 days after ex-works): ±500ppb
- Frequency Stability: TA varied over temperature, measurement referenced to frequency observed with fref=(fmax+fmin)/2, Vs=3.3V, VC=1.65V/NC, load=50Ω/15pF, temperature variable speed less than 2°C per minute.
- Ageing: Vs, VC, TA constant measurement referenced to frequency observed with TA=25°C, Vs= 3.3V, VC=1.65V/NC, load=50Ω/15pF and after 30 days of operation.
- Supply Voltage Variation (measurement referenced to frequency observed with TA=25°C, Vs varied from 3.13V to 3.47V, VC =1.65V/NC and load=50Ω/15pF): ±10ppb max
- Load Variation (5% load change measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC =1.65V/NC and load=50Ω/15pF): ±10ppb max
- Short Term Stability - Allan Variance (temperature stability, no EMI\EMC or other interference test after power for 1hr ref. to 25°C; 1s, using PN9000 equipment): 0.1ppb max / 1sec
- Standard Frequencies: 10.0MHz, 12.80MHz, 19.20MHz, 20.0MHz, 25.0MHz 38.880MHz, 40.0MHz

Outline (mm)



Electrical Parameters

- Supply Voltage 3.3V ±5%
- Current Draw:
  Warm up: 600mA max
  Steady state (@ 25°C): 300mA max
- Warm-Up Time (@ 25°C, F<±100ppb of final frequency): 5mins max

Frequency Adjustment

- Pulling ±3ppm to ±8ppm
- Control Voltage 1.65V ±1.65V
- Input Impedence 100kΩ min
- Linearity: ±10% max
- Slope: Positive

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Operating Temperature Ranges

- -20 to 70°C
- -30 to 75°C
- -40 to 85°C

Output Details

- Output Compatability HCMOS/Sinewave
- Duty Cycle (HCMOS): 45/55%
- Rise/Fall Time (HCMOS): 8ns max
- Output Levels (HCMOS):
  Low (@ Vs=3.3V, load=15pF): 0.4V max
  High (@ Vs=3.3V, load=15pF): 2.4V min
- Output Levels (Sinewave):
  6dBm min, 10dBm max

Noise Parameters

- Phase Noise (@ 10MHz typ):
  -100dBc/Hz @ 10Hz
  -130dBc/Hz @ 100Hz
  -150dBc/Hz @ 1kHz
  -150dBc/Hz @ 10kHz
  -150dBc/Hz @ 100kHz
  -155dBc/Hz @ 1MHz
- Phase Noise (@ 100MHz typ):
  -85dBc/Hz @ 10Hz
  -118dBc/Hz @ 100Hz
  -140dBc/Hz @ 1kHz
  -145dBc/Hz @ 10kHz
  -145dBc/Hz @ 100kHz
  -150dBc/Hz @ 1MHz
- Harmonic Suppression (Sinewave): -30dBc max
  Spurious Suppression (Sinewave): -60dBc max

Environmental Parameters

- Operable Temperature Range: -40 to 85°C
- Storage Temperature Range: -55 to 105°C
- ESD Level:
  HBM, Class 2: 2000V to 4000V, JEDEC JS-001-2010
  Machine Model, Class B: 200V to 400V, JEDEC JS-001-2010
- Shock: IEC 60068-2-27, Test Ea, Severity 50A: 50G, 11ms duration, 1/2 sine wave, 3 times in each of 3 mutually perpendicular planes
- Vibration: IEC 60068-2-06, Test Fc: 10Hz-500Hz, 0.75mm displacement, 10G acceleration, one cycle per 30mins, 3 times in each of 3 mutually perpendicular planes, test 2hrs

Manufacturing Details

- Moisture Sensitivity Level: 2
- Maximum Reflow Temperature: 260°C (30secs max)

Ordering Information

- Frequency*
  Model Option*
  Output Type*
  Frequency Stability (over operating temperature range)*
  Operating Temperature Range*
  Supply Voltage
  Pulling*
  (*minimum required)
- Example
  10.0MHz IQOV-162-3
  HCMOS ±20ppb -40 to 85C 3.3V ±3ppm to ±8ppm

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Compliance

- RoHS Status (2011/65/EU) Compliant
- REACh Status Compliant
- MSL Rating (JDEC-STD-033): 2

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
  Pack Size: 500
- Pack Style: Bulk Loose in bulk pack
  Pack Size: 1

Electrical Specification - maximum limiting values 3.3V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppb	mA	ns	%
10.0MHz	100.0MHz	-20 to 70	±10.0	-	-	-
		-30 to 75	±10.0	-	-	-
		-40 to 85	±10.0	-	-	-

This document was correct at the time of printing; please contact your local sales office for the latest version.
Click to view latest version on our website.

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